

# *Treating Membranous Nephropathy from "Pathologic Wind"*

Xin YANG<sup>1,a</sup>, Chunying Liu<sup>2,b,\*</sup>

<sup>1</sup>*Shaanxi University of Chinese Medicine, Xianyang, Shaanxi 712046, China*

<sup>2</sup>*Affiliated Hospital of Shaanxi University of Traditional Chinese Medicine, Xianyang, Shaanxi 712000, China*

*<sup>a</sup>yx2527@126. Com, <sup>b</sup>liuchy28@163.com*

*\*Corresponding Author*

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**Abstract:** Membranous nephropathy is a common clinical kidney disease. The incidence has gradually increased in recent years. However, Western medicine has limitations in the treatment of membranous nephropathy. The curative effect of traditional Chinese medicine in the treatment of membranous nephropathy has become more and more obvious. Treatment of membranous nephropathy from the angles of, dehumidification, dredging collaterals, promoting blood circulation, strengthening the body, etc. The pathogenic characteristics of wind pathogens are similar to the pathogenesis of membranous nephropathy. Therefore, the treatment of membranous nephropathy is discussed from the theoretical perspective of "disease caused by wind pathogens".

## 1. Introduction

Membranous nephropathy is one of the main pathological subtypes of primary nephrotic syndrome, and its pathological changes are mainly a group of diseases characterized by the presence of immune complex deposits under the epithelial cells of the glomerular basement membrane with GBM thickening. 80% of patients have clinical manifestations of nephrotic syndrome, dominated by massive proteinuria, decreased plasma albumin, severe edema, and dyslipidemia. In recent years, it has been reported that the proportion of MN in primary glomerulonephritis is on the rise, and there is a significant increase in MN patients younger than 40 years of age [1], which may be related to environmental and genetic factors. However, there is no effective treatment plan in Western medicine, and the traditional treatment plan of applying hormones and immunosuppressants will bring greater side effects to patients, so this paper will discuss the treatment of MN from the perspective of Chinese medicine.

## 2. Etiological Mechanism of MN

From ancient times to the present, there is no name for MN in Chinese medical texts, but MN is mostly characterized by edema and large amounts of proteinuria. "The symptoms are similar to

those of MN, and can be classified as “edema”. According to “Su Wen - Water Heat Point Theory”, “Therefore, its origin is in the kidney and its end is in the lung”, and “All dampness and swelling and fullness belong

to the spleen”, it can be judged that the disease is located in the kidney, related to the lung and the spleen, and the deficiency of the origin and the symptoms are the basic pathogenesis of the disease. This deficiency can be seen in the dysfunction of the internal organs and damage to qi, blood, yin and yang, while the symptoms can be seen in wind, dampness, heat, stasis and toxicity. According to many doctors, MN is most closely related to the spleen and kidney. The pathological basis is deficiency of spleen and kidney qi, deficiency of spleen qi, inability to transport water and fluid, deficiency of kidney qi, lack of power of qi-transformation, and overflow of water and fluid, causing edema [2]. The kidney qi is not solid and is unable to seal, resulting in the leakage of essence and microscopic substances without solidity; kidney deficiency and kidney yang deficiency, fire does not warm the earth, resulting in weakness of the spleen and stomach and inability to unify the body leading to the leakage of essence and microscopic substances, causing proteinuria. In addition, based on the deficiency of the spleen and kidney, the deficiency of the body surface, the invasion of wind and evil into the body can cause the lung to lose its regulation, water and dampness to overflow on the muscle surface, and can also cause the liver to lose its drainage, the Qi to lift and lower abnormally, and the Qi and blood to run poorly, resulting in water and dampness, damp-heat, dampness, stasis of blood and other pathological products, resulting in a long course of MN, easy to recur, and the disease is lingering and difficult to heal [3].

### **3. Chinese Medicine's Understanding of the Relationship between Wind-Driven Disease and MN**

Wind is one of the six evil spirits, and the six spirits are closely related to the six gases, meaning wind, cold, heat, humidity, dryness, fire (heat), the six natural climate changes, when the natural world is not its time but its gas, the six gases change into the six spirits, in addition, when in normal climatic conditions, due to their own low regulation ability and disease, also belong to the six spirits. As the first of the six evil spirits, wind is the beginning of all diseases, and has the characteristics of good movement, lightness and openness. The incidence of MN has increased significantly in recent years, which may be related to environmental pollution, and some studies have shown that a 10 µg increase in PM2.5 concentration per square kilometer increases the risk of MN by 14% [4]. By taking the analogy, PM2.5 is similar to the characteristics of wind evil, which is good at moving, light and open, which fully illustrates the importance of wind evil on the development of MN.

#### **3.1 Wind Evil is the Cause of Disease within**

The “Suwen - Water Heat Point Theory” proposed that “the kidney sweat meets the wind, the internal shall not enter the internal organs, the external shall not cross the skin, the guest in the Xuanfu, line in the skin, spread for tarsal swelling”, proposed that the wind evil attacking the human body leads to the dysfunction of the internal organs. Wind is a Yang evil, easy to attack Yang position, lung is a delicate organ, easy to feel the wind evil, first hurt its lung, mother disease and son, and then damage its kidney. Lung Qi is not propagated, kidney is not in charge of water, water is hidden between the muscles, internal cannot be adjusted, external cannot be drained, resulting in edema. The Su Wen says: “The lung produces the skin and hair, and the skin and hair produce the kidney.

#### **3.2 Wind and Other Evils Combine to Cause Disease**

The “clinical guide to medical cases” said: “cover the six gases, but the wind energy all together with the five gases .... Cover because the wind can agitate these five qi and hurt people .... The disease is caused by the wind since more.” Wind is the longest of all diseases, often combined with other evil and hurt people, resulting in Qi, blood, fluids run out of order to form moisture, heat, stasis. The wind and dampness are prone to injure the spleen and earth, blocking the spleen, damaging the spleen and Yang, which is incapable of transporting and transforming the spleen, which is the essence of the latter, and cannot nourish the innate, and the wind is open and draining, and the essence overflows, forming proteinuria. The evil of wind and heat injures lung yin, the lung is not regulated, water does not work in the normal way, heat injures the kidney complex, blood flow is not smooth, and edema develops. Wind, dampness, heat and stasis are entangled with each other, leading to further progression of the disease and making it more prolonged and difficult to cure.

### **3.3 Disease Caused by the Internal Growth of Wind Evil**

Zhang Jiebin's “Classics - Tibetan Elephant” says: “The liver and kidney are the son and mother, and their qi is connected”, and “Nei Jing - Yin Yang Ying Xiang Da Lun” says: “The kidney is the master of the bone marrow, and the marrow gives birth to the liver”, which shows the connection between the liver and kidney, so called “the same source of E and K “The connection between the liver and the kidneys is clear. The internal wind is mostly caused by the imbalance of the opening and closing of the internal organs due to the endogenous evil qi, and the internal wind is triggered by the heat of depression, which is closely related to the liver, because the liver is the main drainage, and the kidney is the main seal, the wind evil is generated internally, stagnation of qi, stagnation of qi and blood, the kidney ligament is not accessible, resulting in edema and proteinuria.

### **3.4 Wind Evil is Good and Causes Disease**

The wind evil causes the disease, with indefinite onset and indefinite symptoms, which is a characteristic of the wind evil that is good at moving several times, and is consistent with the clinical characteristics of MN with long-term edema that is difficult to subside or persists from time to time, or proteinuria that persists, or recurrent disease due to repeated external sensations [5]. Because of the high levels of inflammatory factors in patients with MN, there is significant inflammatory damage and podocyte destruction in the renal tissue. These inflammatory factors are present in the immune, neurological, endocrine and other systems, which is similar to the characteristics of the “good movement” of wind. Inflammatory factors interact with each other, feed back and regulate each other, transmitting signals and leading to the pathological state of the body [6].

## **4. Wind-Based Treatment of MN**

Wind is inextricably linked to the occurrence, development and prognosis of MN, and various medical doctors have different understanding of the effect of wind on MN. The main pathogenesis of MN is wind, and different treatments are discussed in terms of dispelling wind and removing dampness, dispelling wind and invigorating blood, dispelling wind and opening the ligaments, and dispelling wind and benefiting the kidney.

### **4.1 Expel Wind and Remove Dampness**

Li Dongyuan's “Spleen and Stomach” suggests that “the victory of damp and cold, help wind to

pacify it". Wind and dampness invade the body, the lungs are out of tune, then water and dampness flood the muscle surface, wetness is heavy and turbid, easy to block the qi leading to qi stagnation and blood stasis. The kidney is water, the main seal, the yin of the yin, wind and dampness is a yin evil, and the kidney with the same qi, leading wind and dampness evil qi directly to the kidney. Therefore, the application of wind-dampness dispelling drugs is particularly important in the whole treatment process, such as Fangqi, Papaya, Qingfengteng, Haifengteng, Xu Changqing, etc. Such drugs can significantly improve glomerular circulation, inhibit glomerular microvascular proliferation, reduce vascular permeability, and play a role in reducing proteinuria; at the same time, they have mechanisms such as inhibition of inflammatory response and anti-oxidative stress to play a non-specific anti-inflammatory role [7]. It is believed that wind evil disturbing the kidney is a key factor in the production of proteinuria. If wind-dampness is on the surface, with deficiency symptoms as the main cause, Fangji Huangqi Tang with addition and subtraction is used; if damp-heat is contained within, Mahuang Lianxiao Chixiao Dou Tang with addition and subtraction is used [8]. Wind evil is the longest of all diseases and is prone to attack the lungs first, resulting in the loss of lung circulation and overflow of water, which leads to edema. Therefore, the use of wind-eliminating herbs such as burdock and cicada molasses can promote the lung and dampness, clear heat and detoxify the toxins [9]. In addition, the delayed healing of MN is due to the entrapment of wind and dampness, so torch flower root tablets are preferred in the treatment of dispelling wind and dampness, dispelling blood stasis and clearing the ligament [10].

#### 4.2 Expelling Wind and Clearing the Ligaments

In terms of the structure of the kidney, the structural characteristics of the glomerular capillary collaterals and the reticular distribution of the renal ligaments and the function of the popular perfusion of qi and blood are consistent, and the structure of the renal ligaments is more delicate and full of qi and blood, so the pathological changes of the renal ligaments such as qi stagnation and blood stasis or qi and blood deficiency are likely to occur in the process of MN development [11]. Wind evil can enter the kidney ligament from the surface of the solar meridian, so that the wind can ambush the kidney ligament [12]; it can also enter the kidney from the spleen ligament, the spleen loses transportation and transformation, the earth does not produce gold, then the lung is deficient in spleen qi, the guard surface is not solid, the wind evil invades the body's muscle surface through the couples, and the meridians and veins ambush the kidney ligament. Professor Sun Wansen [13] believed that the root cause of MN lies in the deficiency of the root and the deficiency of the spleen and kidney. As the main causative factor, Professor Sun chose the five methods of wind control, wind dispelling, wind searching, wind picking, and wind extinguishing to treat wind in his treatment. He summarized the formula for dispelling the wind and opening the ligaments: Huang Qi, Fang Feng, Wu Zhi Snake, Sang Sang Sang, and Sheng Di Huang, as a special formula for kidney disease and kidney ligaments. The wind evil is good at entering the luo, so in the early stage of MN, the main purpose is to dispel the wind and open the luo. The main purpose of the formula is to remove the wind evil that has been detained for a long time in the kidney ligaments and the wind evil that has been received externally [14]. Wind is open and draining, and it is easy to invade the kidney with dampness and heat (cold), and the wind-cold (heat) and dampness do not melt and the qi and blood do not run smoothly, leading to aggravation of qi stagnation and blood stasis. Therefore, Zou Shi chose the method of dispelling the wind and opening the ligaments, and commonly used stiff silkworm, cicada moth, whole scorpion, and ground dragon to take the effect of insect medicine to search the wind and open the ligaments [15].

#### 4.3 Expelling Wind and Invigorating Blood

In the early and middle stages of MN, external wind is the main cause, and in the later stages, internal wind is the main cause. The formation of internal wind is mostly due to dysfunction of the internal organs, such as spleen spleen deficiency, spleen does not rise clear, grain gas downflow, dampness and deficiency of internal fire, which turns into wind over time; or spleen deficiency, liver multiplication, earth deficiency, wood multiplication of wind, or liver depression, blood deficiency, wind. The wind evil enters the ligaments and blocks the qi flow, resulting in qi stagnation and blood stasis, blood stasis and loss of nourishment in the kidney ligaments, which leads to internal movement of wind energy; and “blood is not conducive to water”, which aggravates edema, stasis of blood and leakage of essence and microorganisms, resulting in proteinuria. Modern medicine has shown [16] that the blood of MN patients is often in a hypercoagulable state and is prone to complications of venous thromboembolism, so relieving the hypercoagulable state of patients has an extremely important role in the prognosis. The disease has a long duration, and the blood stasis is a constant part of the disease; and it is easy to recur, which is in line with the characteristics of wind evil, so the treatment should focus on dispelling the wind and activating the blood, and often use Chuanxiong, Danshen, Tao Ren, and Hong Hua to activate the blood and resolve blood stasis to achieve the purpose of blood flow and wind removal [17]. Modern studies have shown that blood activating drugs have the effects of immunomodulation, anti-inflammation, anticoagulation, thrombolysis, and promotion of renal tissue repair, which are consistent with clinical use. In the treatment of MN, blood circulation and blood stasis should be promoted throughout the treatment, and at the same time, focus on dispelling wind and eliminating evil, since ancient times, there is the saying that “treating wind first treats blood, and the wind will be eliminated when the blood moves”, so the use of *Angelica sinensis* to nourish blood and dispel wind, together with *Astragalus* can achieve the effect of reducing proteinuria. At the same time, wind dispelling medicine has also achieved excellent results in the treatment of blood stasis, which not only dissolves blood stasis in the blood vessels, but also dilates blood vessels, reduces vascular resistance, and activates blood circulation to remove blood stasis.

#### 4.4 Expel Wind and Benefit the Kidney

The basic pathogenesis of MN is the deficiency of the root cause and the symptoms of the disease. The deficiency of the root cause is mostly due to deficiency of kidney qi, while the symptoms of the disease are mostly due to wind, dampness, heat and blood stasis. Wind evil as the head of all diseases can not only directly hit the kidney, but also affect the operation of qi, blood and fluid, forming pathological products such as water, dampness, phlegm and stasis, which in turn aggravate the disease, and so on and so forth, making it difficult to heal the disease [18]. Professor Wang Tuan-kui [19] advocated tonifying the kidneys first and supporting the righteousness in the treatment of MN, followed by dispelling wind mainly, paying attention to wind evils, and preparing his own formula to support the righteousness and dispel wind: Huang Qi, Pierced Mountain Dragon, and Niubizi, etc. Appropriate heat-clearing drugs were added in the process of preparation to restrain the heat symptoms brought about by large doses of tonic drugs. Professor Song Liquan [20] believed that the main cause of MN is the deficiency of positive energy caused by the external attack of wind and overwork, and created the formula of strengthening the spleen and kidney and dispelling wind and dampness to treat MN from the perspective of dispelling wind and benefiting the kidneys, and Song et al. randomly divided 56 patients with MN into two groups: one group of patients was treated conventionally by Western medicine, applying hormone + Benadryl hydrochloride 20 mg orally once a day, and the other group was treated on the basis of the first group + strengthening the spleen and kidney and dispelling wind and dampness. The other group was treated with the formula of dispelling wind and dampness. The results showed that the



treatment regimen of conventional Western medicine + strengthening the spleen, benefiting the kidney and dispelling wind and dampness could effectively reduce proteinuria and increase serum albumin compared with the control group. From the microscopic dialectical perspective, firstly, MN is an autoimmune nephropathy mediated by in situ immune complexes, and the self-targeting antigen is the M-type receptor of secretory phospholipase A2 (PLA2R), which is the modern pathological basis of MN “deficiency of positive qi and wind-evil entering the kidney” [1]. “The modern pathology of MN is based on the deficiency of proper qi and the entry of wind and evil into the kidney [21].

## 5. Conclusion

Wind, one of the six evil spirits, is a yang evil, easy to attack the yang position, open and leaky, good at moving several times, and easy to carry other evils. The pathogenesis of immune diseases is closely related to wind evil, and the pathogenesis of membranous nephropathy is similar to the pathogenic characteristics of wind evil, which is not only the cause of MN pathogenesis, but also an important influencing factor leading to the prolongation of MN. Secondly, the indicators are mainly to dispel the wind, and according to the difference of the entrapped evil Qi, different treatment plans are given. Western medicine treatment, in addition to symptomatic treatment, mainly with glucocorticoids combined with immunosuppressants, due to the long duration of the patient's disease, long-term use of toxic side effects, patients do not tolerate; and easy to rebound after stopping the drug; more complications of Western medicine intervention effect is limited, long-term use of hormones, immunosuppressants patients with low resistance, easy to complicate the infection, resulting in the course of treatment can not continue; therefore, the treatment of many difficulties. In recent years, due to the more prominent effect of Chinese medicine in the treatment of MN, to dispel the wind as the representative, with obvious anti-inflammatory, anti-allergic, anti-oxidative stress, anti-metamorphic reaction and immunomodulatory effect. It not only adjusts the immune metabolism disorder of the body, but also reduces the toxic side effects caused by hormones and immunosuppressants, restores the body's vitality and reduces the recurrence of the disease. This paper provides a clinical treatment idea of treating MN from the perspective of wind, based on the similarity between the characteristics of wind and the pathogenesis of MN.

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